# Participating USDA Mission Areas

Research, Economics, and Education

> Food, and Nutrition Consumer Services

**Food Safety** 

Marketing and Regulatory Programs

Trade and Foreign Agricultural Affairs

**Hosted by** 

USDA Office of the Chief Scientist



USDA Intra-Departmental Nutrition Workshop Series

November 7 and 14, 2017



Page(s)

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## Do Right and Feed Everyone



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"USDA is the <u>only</u> Department that works to ensure a safe, nutritious, and secure food supply from farm-to-fork. Our collaborative USDA approach is multi-faceted, from increased agriculture production to the administration of 15 federal nutrition assistance programs. Ensuring products with the highest nutritional value is also a key ingredient to our Department's role in promoting the free flow of agricultural trade. This *Work*shop Series worked because more than 80 USDA colleagues came together to learn how to better maximize their individual and collective ability to ensure data-driven approaches to improve and sustain health."

#### Dr. Chavonda Jacobs-Young

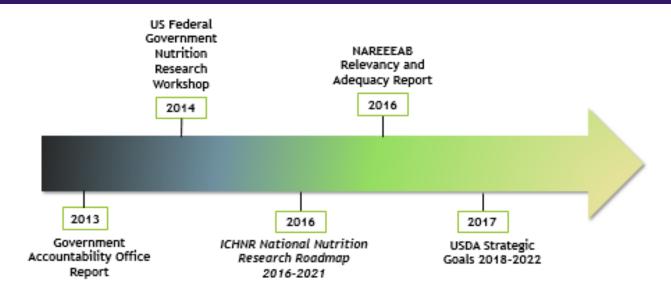
Acting Deputy Under Secretary for Research, Economics, and Education and Acting USDA Chief Scientist



<u>Suggested Citation</u>: Fleischhacker S, on behalf of the Workshop Series Planning Committees. *USDA Intra-Departmental Nutrition Workshop Series*. Washington, DC: USDA Office of the Chief Scientist; 2018.



## About the Workshop Series



Various activities such as the ones illustrated above and detailed below led up to and informed the collaborative steps the USDA Office of the Chief Scientist took towards developing the first-of-its-kind USDA Intra-Departmental Nutrition Workshop Series on November 7 and 14, 2017.

- The United States Government Accountability Office (GAO) recommends in a <u>2013 report</u> that the <u>USDA Agricultural Research Service (ARS)</u> and <u>National Institute of Food and Agriculture (NIFA)</u> enhance collaborative planning, which was described to involve bringing together research agencies and stakeholders to discuss priorities, roles and responsibilities.
- The USDA hosted a United States Federal Government Nutrition Research Workshop in March 2014 in part to address GAO's recommendations for enhancing collaborative planning. During the Workshop, <u>USDA Research, Education, and Economics Mission Area</u> scientists shared information with scientists and policymakers from various inter-departmental regulatory and policy making agencies ("action agencies") and obtained input from these action agencies on their data and research needs. The Workshop Planning Committee suggested the USDA Office of the Chief Scientist consider hosting a workshop of this format about every 3.5 years.
- The Interagency Committee on Human Nutrition Research (ICHNR) released the first-of-its-kind National Nutrition Research Roadmap 2016-2021: Advancing Nutrition Research to Improve and Sustain Health in March 2016. The ICHNR is charged with improving the planning, coordination, and communication among federal agencies engaged in nutrition research and with facilitating the development and updating of plans for federal research programs to meet current and future domestic and international needs for nutrition. The ICHNR is co-chaired by the USDA Under Secretary for Research, Education, and Economics and Chief Scientist and the Department of Health and Human Services (HHS) Assistant Secretary for Health and is made up of more than 10 departments and agencies.
- The National Agricultural Research, Extension, Education, and Economics Advisory Board (NAREEEAB) performed a statutorily required annual review known as the 2016 Relevance and Adequacy Report that focused on the REE Action Plan Goal 4 Nutrition and Childhood Obesity and Goal 5 Food Safety. Across both Action Goals, ample evidence documented the complementarity and collaborative nature of REE's research, extension, and education with other Federal agencies. The NAREEEAB put forth recommendations for encouraging stronger integration across USDA and strengthening connections between nutrition and food safety, among others.
- The <u>US Secretary of Agriculture Sonny Perdue</u> shared our new <u>USDA Strategic Goals for FY</u> 2018-2022 during the fall of 2017.

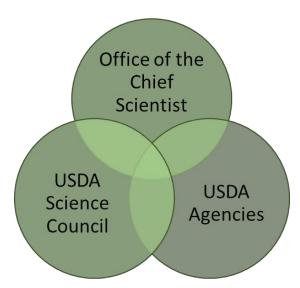
#### About the USDA Office of the Chief Scientist

The <u>USDA Office of the Chief Scientist</u> (OCS) was established in accordance with the <u>Food</u>, <u>Conservation</u>, <u>and Energy Act of 2008</u> to provide strategic coordination of the science that informs the Department's and the Federal government's decisions, policies, and regulations that impact all aspects of the US food and agriculture and related landscapes and communities.

OCS advises USDA's Chief Scientist and the Secretary of Agriculture in the following areas of science:

- Agricultural Systems and Technology
- Animal Health and Production, and Animal Products
- Plant Health and Production, and Plant Products
- Renewable Energy, Natural Resources, and Environment
- Food Safety, Nutrition, and Health
- Agricultural Economics and Rural Communities

OCS provides scientific leadership by ensuring that research supported by and scientific advice provided to the Department and its stakeholders is held to the highest standards of intellectual rigor and scientific integrity. In addition, OCS supports the Department's international scientific engagements.



The OCS also convenes the <u>USDA Science Council</u> to further facilitate scientific coordination and collaboration across the USDA. The USDA Science Council aims to ensure that science informs policy and program decisions as well as to advance the scientific discovery, technological breakthroughs and innovation required to achieve the Secretary's science and technology priorities. The USDA Science Council members represent all USDA Missions, Agencies, and Program offices' Heads and their Senior Staff delegates.



The Director of the OCS, <u>Dr. Dionne Toombs</u>, briefly shared with the Workshop Series participants the OCS's role and responsibilities in strengthening integration for USDA Nutrition. She discussed how the Workshop's emphasis on enhancing collaborative planning is part of equipping ourselves and the agencies, divisions, offices, and centers we represent to work more efficiently and effectively towards providing Americans with safe, nutritious, and secure food.

## About the Workshop Series Participants

The Workshop Series involved the following five mission areas:

#### Research, Economics, and Education Mission Area (REE)

- Agricultural Research Service (ARS)
- Economics Research Service (ERS)
- National Institute of Food and Agriculture (NIFA)
- National Agricultural Library

#### Food, and Nutrition Consumer Services Mission Area (FNCS)

- Center for Nutrition Policy and Promotion (CNPP)
- Food and Nutrition Service (FNS)

#### **Food Safety Mission Area**

Food Safety and Inspection Service (FSIS)

#### **Marketing and Regulatory Programs Mission Area (MRP)**

Agricultural Marketing Services

#### **Trade and Foreign Agricultural Affairs Mission Area (TFAA)**

Foreign Agricultural Service

Pre-meeting materials summarized each of the participants' roles and responsibilities in providing Americans with safe, nutritious, and secure food and included updates from participating members on implementing the first-of-its-kind Interagency Human Nutrition Research Committee National Nutrition Research Roadmap 2016-2021.



### About the Workshop Series Planning Process

More than 50 USDA staff were involved in the planning of the 2017 USDA Intra-Departmental Nutrition Workshop Series. The USDA Office of the Chief Scientist (OCS) worked with members of the 2014 US Federal Government Nutrition Research Workshop Planning Committee, among others, to build the 2017 team, acknowledged below. More than 200 USDA staff were made aware of and kept abreast of the Workshop Series. We are tremendously grateful for the time and thoughts each of the following planning committee members contributed towards making the 2017 Workshop Series a success!

#### 2017 USDA Intra-Departmental Nutrition Workshop Series Planning Committee

- Pamela Starke-Reed, ARS (also assisted with Big Data and Food Safety)
- David Klurfeld, ARS (also assisted with Big Data, Encouraging Healthy Choices, and Food Safety)
- John Finley, ARS (also assisted with Big Data and Encouraging Healthy Choices)
- Naomi Fukagawa, ARS (also assisted with Big Data and Encouraging Healthy Choices)
- Joanne Guthrie, ERS (also assisted with Big Data and Encouraging Healthy Choices)
- Wendy Davis-Shaw, NAL (also assisted with Big Data, Encouraging Healthy Choices, and Food Safety)
- Deirdra Chester, NIFA (also assisted with Big Data)
- Colette Rihane, CNPP (also assisted with Encouraging Healthy Choices and Food Safety)
- Donna Johnson-Bailey, FNS (also assisted with Encouraging Healthy Choices)
- Janell Kause, FSIS (also assisted with Food Safety)
- Laura Walter, AMS (also assisted with Encouraging Healthy Choices and Food Safety)
- Diane DeBernardo, FAS (also assisted with Encouraging Healthy Choices and Food Safety)
- Paul Alberghine, FAS (also assisted with Encouraging Healthy Choices and Food Safety)
- Katherine Nishiura, FAS
- Elizabeth Dann, OCS (also assisted with Big Data)
- Sheila Fleischhacker, OCS (Chair)

Other contributors include: REE/OCS—Chavonda Jacobs-Young, Ann Bartuska, Dionne Toombs, Rich Derksen, Holly Wiggins, Damon Thompson, Justice Wright, Rena Bannister, Tiffany Jones, Michele Simmons, and Michele Esch; ARS—Sarah Booth; ERS—Ephraim Leibtag, Sandra Hoffmann, and Jay Variyam; NAL—Susan McCarthy; NIFA- Denise Eblen; CNPP—Eve Essery Stoody, Stephanie Fu, Julie Obbagy, and Elizabeth Rahavi; FNS—Melissa Abelev, Sonya Barnes, Jane Duffeld, Cheryl Jackson Lewis, Kelley Scalon, Anthony Panzera, Yibo Wood, Usha Kalro, and Tina Hanes; FSIS—Kis Robertson; AMS—Carl Schroeder; FAS—Michelle Calhoun; Caitrin Martin; Wendell Dennis; and Joanna Brown.

## About the Workshop Series Panels







The first panel of the Workshop Series focused on "Strengthening Integration for USDA Nutrition—Lessons Learned from Coordinated USDA Nutrition Activities." The following selected inter-agency activities were highlighted:

- The Interagency Committee on Human Nutrition Research (ICHNR)
- Dietary Guidelines for Americans (DGA)
- <u>Dietary Reference Intakes (DRI)</u>
- USG Global Nutrition Coordination Plan (GNCP)

After an overview of the new <u>USDA Strategic Goals for FY</u> 2018-2022 by <u>Donald Bice</u>, USDA Deputy Assistant Secretary for Administration and the USDA Office of Budget and Program Analysis Associate Director, the second panel of the Workshop focused on "USDA Nutrition Scientific Prioritization Processes." This panel was divided into the following three parts:

- Learning how USDA research agencies from the <u>USDA Research, Education, and Economics Mission</u> <u>Area</u> approach scientific prioritization; specifically, <u>ARS</u>, <u>ERS</u>, and <u>NIFA</u>.
- 2) Developing an understanding of how USDA action agencies approach scientific prioritization for their policy and programmatic purposes; specifically, from the Food, and Nutrition Consumer Services Mission Area (Center for Nutrition Policy and Promotion and Food and Nutrition Service); Food Safety Mission Area (Food Safety Inspection Service); Marketing and Regulatory Programs Mission Area (Agricultural Marketing Service); and Trade and Foreign Agricultural Affairs Mission Area (Foreign Agricultural Service).
- 3) Focusing on a case study illustrating how an <u>ARS-FSIS</u> multi-phase collaborative investigation improved FSIS' ability to carry out its regulatory mission and helped ARS produce research of practical value to food safety regulators across the globe.

Altogether, these two panels and the overview of the USDA new Strategic Goals enabled participants to consider where and how to foster new and stronger areas of integration.

# Topical Deep Dive Area Encouraging Healthy Choices Across the Life Course

During the Workshop Series, participants were invited to participate in three topical deep dive areas:

- 1) Encouraging Healthy Choices (November 7);
- 2) Strengthening Nutrition & Food Safety Intersections (November 14); and
- 3) Developing Data-Driven Approaches (November 14).

Encouraging healthy choices across the life course is critical to helping provide Americans with safe, nutritious, and secure food. We hosted three small groups on November 7 to discuss existing and potential USDA efforts focused on encouraging healthy choices, particularly among:

- Women who are pregnant and/or lactating and infants from birth to 24 months;
- Children and adolescents; and
- Older adults.

Each participant listed up to five activities from his or her agency/division/center/office relevant to encouraging healthy choices within the targeted age group. Participants then placed their activities using Post-it(s) along the Research-to-Action-to-Impact Paradigm, illustrated below, to help visualize our Departmental strengths and areas of improvement. Participants were also asked what steps the USDA Office of the Chief Scientist can take to enhance collaborative planning around encouraging healthy choices.



The Research-to-Action-to-Impact Paradigm

The above image is from the <u>Children's Hospital of Philadelphia Research Institute Center for Injury Research and Prevention</u>. Operational definitions and selected examples for each phrase of the paradigm were provided in a participant handout.

## Encouraging Healthy Choices Across the Life Course Selected USDA Activities



## Woman who are Pregnant and/or Lactating and Infants from Birth to 24 Months

- USDA ARS Arkansas Children's Nutrition Center Research Project on the Impact of Early Dietary
   Factors on Child Development and Health
- <u>USDA CNPP Nutrition Evidence Library—Birth to 24</u>
  <u>Months Topic Identification Project</u>, among other
  CNPP efforts underway in preparation for developing the 2020-2025 <u>Dietary Guidelines for Americans</u>
- USDA ERS WIC Program Studies & Evaluations
- USDA FNS WIC Program

#### **Children and Adolescents**



- USDA AMS Child Nutrition Labeling Program
- <u>USDA/ARS Children's Nutrition Research</u> <u>Center</u>
- <u>USDA FAS McGovern-Dole Food for Education and</u>
   Child Nutrition Program
- USDA FNS Child Nutrition Programs
- USDA FNS Team Nutrition

#### **Older Adults**

- Jean Mayer USDA Human Nutrition Center on Aging
- USDA FNS Adult Day Care Centers

#### **Across the Life Course**

- USDA FoodAPS
- USDA NAL nutrition.gov
- USDA NIFA Competitive Funding Programs
- USDA SNAP-Ed



## Topical Deep Dive Area Strengthening Nutrition and Food Safety Intersections

The "Strengthening Nutrition and Food Safety Intersections—Learning from Existing and Potential Intersections" session on November 14 started with a panel made up of representatives from five mission areas. The National Agricultural Research, Extension, Education, and Economics Advisory Board (NAREEEAB) recommended in their recent review of the REE Action Goals in Nutrition and Childhood Obesity and Food Safety that the USDA Office of the Chief Scientist should play a stronger role in fostering intersections between these two goal areas. The goal of this session was to explore meaningful nutrition and food safety intersections among REE agencies but also across other research, action, and operational components of the Department.

Selected nutrition and food safety intersections highlighted:

- USDA CNPP described the evolution of food safety in the <u>Dietary Guidelines for Americans</u>
- USDA FNS Office of Food Safety shared science-based solutions to problems affecting food safety in child nutrition programs across the US provided by the <u>Center of Excellence for Food Safety Research in Child</u> <u>Nutrition Programs at Kansas State University</u>
- USDA FNS SNAP-Ed shared its work to encourage healthy and safe foods and beverages
- USDA FSIS shared how it works to prevent foodborne illness and protect publichealth
- USDAAMS explained how it develops <u>purchase specifications</u> for school feeding programs including microbiological testing requirements
- USDA ARS described its intersections between its National Research Programs in <u>Food Safety</u> and <u>Human Nutrition</u>
- <u>USDA National Agricultural Library</u> shared its resources and databases including its <u>Nutrition and Food</u>
   <u>Safety Program</u> collections and projects
- <u>USDA ERS</u> explained its long history of research on food safety including consumer responses to food safety recalls and US industry food safety practices
- USDANIFA highlighted the work of its <u>Institute of Food Safety and Nutrition</u> and <u>Cooperative Extension</u> <u>System</u>
- USDA FAS highlighted their work on the <u>McGovern-Dole Food for Education and Child Nutrition</u>
   <u>Program</u>, trade and scientific capacity building programs, the <u>Food Safety Network</u>, and on the <u>Global Food Security Act</u>



## Topical Deep Dive Area Strengthening Nutrition and Food Safety Intersections



The following activities were suggested to explore ways to further enhance collaborative planning for encouraging healthy and safe food and beverage choices across the life course:

- The <u>2020-2025 Dietary Guidelines for Americans</u> expansion to include dietary guidance for pregnant and lactating women, along with infants from birth to 24 months
- <u>Domestic</u> and <u>international</u> school feeding programs
- Nutrition education and promotion focused on older adults—the fastest growing segment of the population; often facing decreased immune function

Other key topical areas ripe for strengthening nutrition and food safety intersections include:

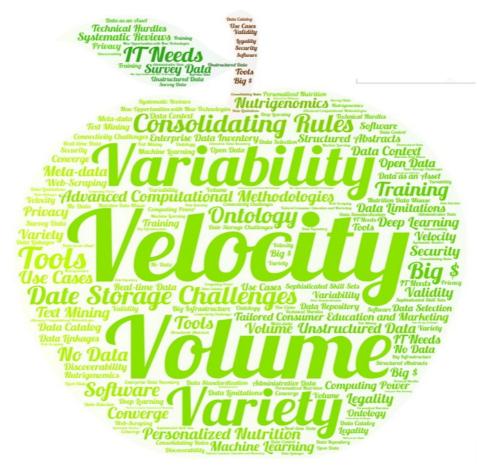
- Advances in technology such as pasteurization, irradiation, and whole genomic sequencing
- Big data and other advanced statistical analyses such as modeling
- Consumer trends such as raw food diets and the clean food movement
- Cost-benefit analyses
- Emerging trends in retail food distribution such as novel food delivery systems
- Efforts to improve food access including local farmers' markets
- Food waste
- Imported foods
- Personalized nutrition
- Promoting produce consumption while mitigating food safety risks
- Sodium reduction

# Topical Deep Dive Area Developing Data-Driven Approaches

During the USDA Intra-Departmental Nutrition Workshop Series on November 14, participants in the "Big Data and Nutrition—Accelerating Progress on Prioritizing Next Steps" session were able to build on issues and opportunities identified during the USDA Intra-Departmental Big Data and Nutrition Convening. This Convening was hosted by the USDA Office of the Chief Scientist and held on September 20, 2017. These two activities and the planning that went into them are key ingredients to our collective USDA nutrition efforts to maximize big and open data for developing data-driven approaches to ensuring a safe, nutritious, and secure food supply.

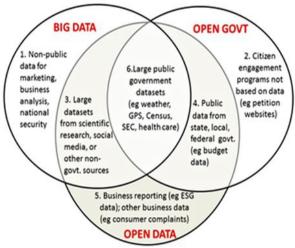
The USDA Office of the Chief Scientist convened key staff across the Department to collectively explore how best to (1) respond to the National Agricultural Research, Extension, Education, and Economics

Advisory Board (NAREEEAB) big data recommendations; and (2) accelerate progress on implementing the big data research and resource initiatives put forth by the ICHNR National Nutrition Research Roadmap. This Convening also explored existing and potential efforts to support the Global Open Data for Agriculture and Nutrition (GODAN), which "supports the proactive sharing of open data to make information about agriculture and nutrition available, accessible, and usable to deal with the urgent challenge of ensuring world food security." In addition, the Convening and then the Data Deep Dive session at the Workshop Series helped support larger goals of scientific prioritization and coordination across the entire Department, including how nutrition data science needs and opportunities intersect with other areas of science within USDA such as agricultural systems.



## What is Big Data?

The word cloud illustrated to the left captures how USDA colleagues describe the opportunities and challenges for using big data and other advanced analytics to improve human nutrition. Bobby Jones, the USDA Chief Data Officer, explained how "big data is often characterized by the following three dimensions—Volume, Variety, and Velocity." He also used the Veen diagram below to illustrate similarities and differences between big data, open data, and open government.



#### **Nutrition Relevant Data Sources**

Participants noted the following sources list nutrition relevant datasets, measures, and training opportunities: <a href="data.gov">data.gov</a>, the <a href="National Collaborative on Childhood Obesity">National Collaborative on Childhood Obesity</a> Research (NCCOR)'s Catalogue of Surveillance Systems and <a href="Measures Registry">Measures Registry</a>, and the <a href="Interagency Committee on Human Nutrition Research (ICHNR) National Nutrition Research Roadmap 2016-2021 Appendices C and D</a>. Workshop participants also discussed the following government supported data sources, among others, they use to develop data-driven approaches to encouraging healthy choices:

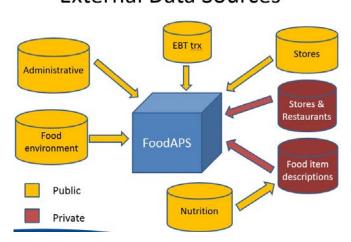
- CDC Foodborne Outbreak Online Database (FOOD Tool)
- CDC National Health and Nutrition Examination Survey (NHANES)
- NIH Dietary Supplement Label Database
- STAR METRICS® Federal RePORTER
- US Census Data
- USDA CNPP Nutrition Evidence Library
- USDA ERS Food Access Research Atlas and Food Environment Atlas
- USDA Food Composition Databases
- USDA FNS Program Data
- USDA FNS Public Use Data Files
- USDA NIFA Current Research Information System (CRIS)
- USDA One Health
- USDA National Household Food Acquisition and Purchase Survey (FoodAPS)
- USDA SNAP-Ed Education and Administrative Reporting System (EARS)
- USDA and HHS What We Eat in America

#### USDA Nutrition Data—Selected Use Cases

The <u>USDA Branded Food Products Database</u> that is a result of a Public-Private Partnership aims to enhance public health and the sharing of open data by complementing the USDA Food Composition Databases with nutrition composition of branded foods and private label data provided by the food industry.

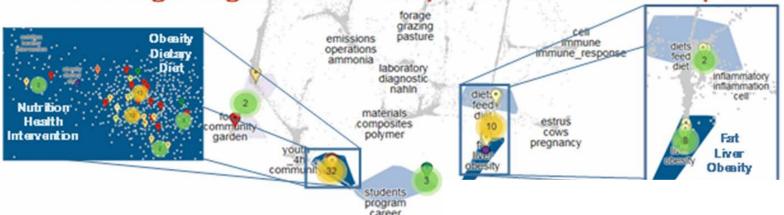


#### **External Data Sources**



USDA's National Household Food Acquisition and Purchase Survey (FoodAPS) is the first nationally representative survey of American households to collect unique and comprehensive data about household food purchases and acquisitions. As illustrated to the left, various external data sources were merged. For example, external data, such as proprietary point-of-sale data, SNAP administrative records, and EBT transaction records, were used to reduce respondent burden and improve data quality.

## Funded Nutrition Projects on NIFA Science Map Investigating 2010 Dietary Guidelines Concepts

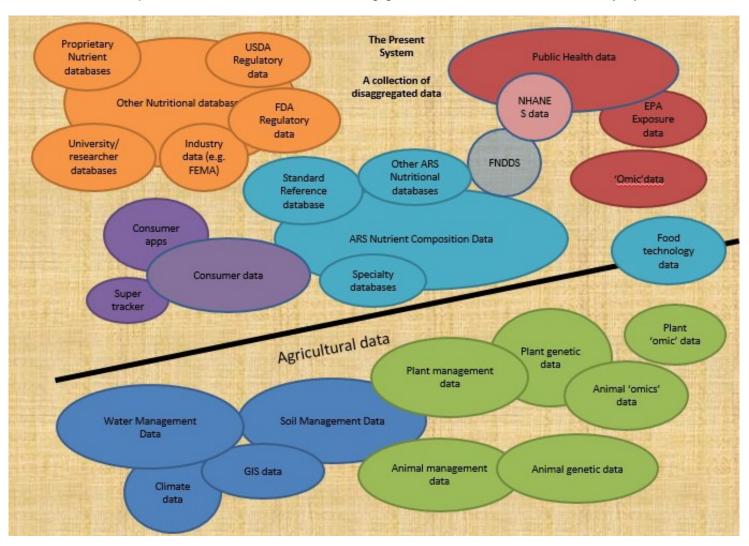


The above illustration shows how NIFA utilized proposal data from FY2011, FY2012, and FY2013 to examine how NIFA funded projects investigate concepts put forth by the 2010 *Dietary Guidelines for Americans* (See abstracts from Part L and Part II of the project).

### Conceptual Model for Rebuilding USDA Databases

During the USDA Intra-Departmental Big Data Convening on September 20, 2017 and the USDA Intra-Departmental Nutrition Workshop Series on November 14, <u>Dr. John Finley, USDA ARS Human Nutrition National Program Leader</u> used the illustration below to encourage participants to consider the present and potential of USDA databases to answer today's key questions, such as:

- What is the water budget of a healthy diet versus the standard American diet?
- What are the land-use and environmental consequences of Americans replacing 10% of meat protein with protein from pulses?
- What are the public health implications of changing the lipid composition of soybeans?
- Does increasing CO<sub>2</sub> change the nutritional composition of key foods to an extent that it results in a public health concern for the US?
- What would be the benefit to public health, as compared to environmental consequences, of doubling tree nut composition?
- What is the impact on calcium status of reducing greenhouse emissions from dairy by 25%?



### USDA Nutrition Data Science Workshop Participants Identified Opportunities, Challenges and Next Steps

#### **Opportunities**

- Strengthen original research quality and trustworthiness
- mHealth interventions that use mobile phones and other wireless technology in medical care
- Smartphone applications
- Data linkage opportunities such as scanner sales data with other health, economic, and social outcomes
- Simulation models to help focus surveillance and target key interfaces and populations
- Wearables such as watches that are tracking physical activity and calorie consumption
- Technically feasible to protect privacy and confidentiality

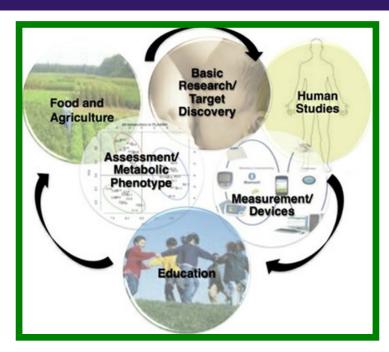
#### Challenges

- Burden on researchers for data sharing
- Privacy and confidentiality could be compromised—not limited to health data
- Data veracity and provenance
- Reanalyses and alternative analyses may mislead or delay action
- Deciphering a big data architecture
- Lengthy approval processes and laborious acquisition requirements for certain data collection strategies
- Need for specialized training, data storage infrastructure, and software
- Ambiguity about who sets standards for data quality, design, and inter-operability and who
  enforces deposition, protects data, and ensures legal compliance
- Study sections and review panels require specialized review expertise

#### **Next Steps**

- Develop case studies in big data and other advanced statistical analyses
- Develop new opportunities for data sharing, data analysis, and data integration
- Explore ways to adopt and create new education, training, research, and departmental policy formulation focused on storing, managing, visualizing, analyzing, and interpreting big data

## Overall Workshop Series Lessons Learned & Next Steps







The 2017 USDA Intra-Departmental Nutrition Workshop Series built on lessons learned from the 2014 United States Federal Government Nutrition Research Workshop and maximized timely opportunities with the roll-out of the new <u>USDA Strategic Goals for FY2018-2022</u>. We embraced USDA's unique farm-to-fork roles in providing Americans with safe, nutritious, and secure food and our new motto: "Do right and feed everyone."

Enhancing collaborative planning is an everyday activity and operating as OneUSDA is a Departmental focus. This Workshop Series helped convene key staff in the USDA nutrition community to learn from and work with each other to identify key next steps to work efficiently, effectively, and with integrity and customer focus to provide Americans with safe, nutritious, and secure food.

The USDA Office of the Chief Scientist is working with the planning committees and workshop participants to move forward on exploring suggested next steps such as:

- Assessing existing and potential formal and informal means of coordination and collaboration among the USDA nutrition community;
- Developing an inter-departmental working group on older adult nutrition;
- Identifying new and improved ways to enhance coordination across USDA food safety and among USDA food safety and nutrition;
- Better utilizing the <u>USDA Human Nutrition</u> <u>Coordinating Committee</u> for sharing agency, division, center, and office level strategic planning updates;
- Hosting data deep dives on USDA nutrition relevant data and related training and resources; and
- Building a USDA Data Science Research Interest Group.

Please contact <u>Dr. Dionne Toombs</u> at 202-720-3444 or dionne.toombs@osec.usda.gov if interested in learning more about the USDA Office of the Chief Scientist, the USDA Intra-Departmental Workshop Series, or serving as a Senior Advisor for Nutrition and Food Safety!